

# Municipal Road Inventory and Evaluation

## Interim Guidance

### 2017 Field Season

**Introduction:** The following Road Erosion Inventory and Evaluation Interim Guidance Form was developed to assist municipalities with the forthcoming Vermont Department of Environmental Conservation's Municipal Roads General Permit (MRGP). The form is based on the draft practice standards that are being developed as part of the MRGP. Vermont municipalities will have to adhere to the MRGP requirements starting in July 2018. These requirements include conducting road erosion inventories of all hydrologically-connected roads. The primary goal of the road erosion inventory is to establish baseline conditions of road segments and evaluate progress of implementation efforts. Inventories will be used to determine if connected road segments meet MRGP standards. For those road segments not meeting MRGP standards, towns will be required to develop Implementation Plans and Schedules and implement those plan practices.

#### Steps for completing the Municipal Road Inventory:

1. Review GIS road segment connectivity maps, made available for each municipality by DEC at [anr.vermont.gov/maps/nr-atlas](http://anr.vermont.gov/maps/nr-atlas). The GIS road segment connectivity is determined by road segment proximity to waters of the state (wetlands, lakes, ponds, perennial and intermittent streams), both bisecting and lateral distance.
2. Record each Road Segment Identification Number and segment slope from the Hydrologically-Connected Road layer, road name, and Town Highway Number. Additional road segments not included in the GIS road segment connectivity map may be found to be connected in the field and evaluated with this form.
3. For each hydrologically-connected road segment complete the corresponding *Road Inventory and Evaluation Form* or corresponding App. Apps must answer all the questions included in these forms.
  - a. Paved Roads with Open Ditches and Gravel/Open (Ditched) Non-Class 4 Roads: Form A
  - b. Class 4 Roads: Form B
  - c. Paved Roads with Curbing Drainage and Catch Basins: Use a separate evaluation and reporting mechanism. Catch basin outlet erosion inventories and other considerations will be included.

#### MRGP Overall Segment Scoring:

- Any standards that score **Does Not Meet** individual practice scores= **Does Not Meet** segment score (except for crown)
- One or two **Partially Meets**\* individual scores= **Partially Meets** segment score
- Three or more **Partially Meets** individual practice scores= **Does Not Meet** segment score
- **Fully Meet** for all individual practice scores= **Fully Meets** segment score

\*Note: both **Partially Meet** and **Does Not Meet** scores indicate road segment does not meet MRGP standards and will require the implementation of road best management practices (BMPs) in order to meet MRGP standards.

Segment Slope:	Fully Meets	Partially Meets	Does Not Meet
1. Crown			
2. Berm/windrow			
3. Drainage ditch/shoulder			
4. Conveyance area/turn out		N/A	
5. Drive culvert			
6. Drainage culvert			
<b>Overall Segment Score</b>			

**Road Inventory and Evaluation Form A**  
**PAVED ROADS WITH OPEN DITCHES**  
**GRAVEL/OPEN (DITCHED) NON-CLASS 4 ROADS**

1 road segment = 100 meters = 328 feet  
 Both sides of road = 200 meters = 656 feet  
 Sheet Flow <1" erosion depth  
 Rill 1"-11" erosion depth  
 Gully 12"+ erosion depth

Name:

Date:

Road Segment Name, Town Highway Number & Segment ID Number:	ANR Atlas Slope:	Field Determined Slope:	Road Type:
			<input type="checkbox"/> Paved <input type="checkbox"/> Gravel

<b>1. ROADWAY CROWN/TRAVEL LANE:</b> (N/A for Paved) What percentage of the segment is properly crowned ( $\frac{1}{4}$ " to $\frac{1}{2}$ " per foot), in-sloped, or out-sloped? Note if erosion is present due to poor road surface material.			<b>Erosion Type Present</b> <input type="checkbox"/> Rill <input type="checkbox"/> Gully
<input type="checkbox"/> 0%-49% (0' - 163') Does Not Meet	<input type="checkbox"/> 50%-89% (164' - 294') Partially Meets	<input type="checkbox"/> 90%-100% (295' - 328') Fully Meets	
<b>2. GRADER BERM/WINDROW:</b> What percentage of the segment (both sides of road, 200m, 656') is the grader berm/windrow removed? (N/A for paved roads)			<b>Erosion Type Present</b> <input type="checkbox"/> Rill <input type="checkbox"/> Gully
<input type="checkbox"/> 0%-49% (0' - 327') Does Not Meet	<input type="checkbox"/> 50%-89% (328' - 589') Partially Meets	<input type="checkbox"/> 90%-100% (590' - 656') Fully Meets	
<b>3. ROAD DRAINAGE:</b> What percentage of the segment (both sides of road, 200m, 656') is allowed to shed in a distributed manner to a vegetated or forested filter area (shoulder lower than travel lane) or drainage ditch stabilized appropriately for the slope range below? <ul style="list-style-type: none"> <li>&lt;5% slope: stabilized with vegetation, stone-lined, or check dams</li> <li><math>\geq</math>5% to &lt;8% slope: stabilized with stone-lined ditch or combination of grass lined ditch with check dams or grass-lined ditch if installed with disconnection practices such as turnouts and cross culverts</li> <li><math>\geq</math>8% slope: stone-lined ditch required</li> </ul>			<b>Erosion Type Present</b> <input type="checkbox"/> Rill <input type="checkbox"/> Gully
<input type="checkbox"/> 0%-49% (0' - 327') Does Not Meet	<input type="checkbox"/> 50%-89% (328' - 589') Partially Meets	<input type="checkbox"/> 90%-100% (590' - 656') Fully Meets	
<b>4. CONVEYANCE AREA/TURNOUT:</b> Do drainage outlets/conveyance areas meet the standard of being turned out, shed in a distributed manner down the bank (shedding water), and/or stabilized with vegetation (<5% slope) or stone (>5% slope)?			<b>Erosion Type Present</b> <input type="checkbox"/> Rill <input type="checkbox"/> Gully
<input type="checkbox"/> One or more areas does not meet standard.		<input type="checkbox"/> All areas meet standard.	<input type="checkbox"/> Rill <input type="checkbox"/> Gully

5. & 6. DRIVEWAY & DRAINAGE CULVERTS				
A. Type of culvert?	B. Is erosion present?	C. Where in the culvert cross section is erosion present and is it rill or gully erosion? SEE CULVERT CROSS SECTION DIAGRAM		
		C1. Failing header/end treatment?	C2. Outlet scour or perched culvert?	C3. Undersized/missing structure/poor condition?
<input type="checkbox"/> Driveway <input type="checkbox"/> Drainage	<input type="checkbox"/> No (Fully Meets) <input type="checkbox"/> Yes (complete C)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)
<input type="checkbox"/> Driveway <input type="checkbox"/> Drainage	<input type="checkbox"/> No (Fully Meets) <input type="checkbox"/> Yes (complete C)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)
<input type="checkbox"/> Driveway <input type="checkbox"/> Drainage	<input type="checkbox"/> No (Fully Meets) <input type="checkbox"/> Yes (complete C)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)
<input type="checkbox"/> Driveway <input type="checkbox"/> Drainage	<input type="checkbox"/> No (Fully Meets) <input type="checkbox"/> Yes (complete C)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)	<input type="checkbox"/> Rill (Partially Meets) <input type="checkbox"/> Gully (Does Not Meet)

(Optional) IS OTHER RILL OR GULLY EROSION PRESENT?		Check if Present in Segment and Note Linear Feet (LF)
<input type="checkbox"/> River-road embankment erosion <input type="checkbox"/> Outside the Right of Way: i.e. agriculture, logging erosion, or private road/drive erosion <input type="checkbox"/> Other:	<input type="checkbox"/> Rill <input type="checkbox"/> Gully	<input type="checkbox"/> Historic stone walls, LF: _____ <input type="checkbox"/> Historic large trees, LF: _____ <input type="checkbox"/> Buried utilities, LF: _____ <input type="checkbox"/> Wetland, LF: _____

Notes:

Overall Segment Score	<input type="checkbox"/> Fully Meets	<input type="checkbox"/> Partially Meets	<input type="checkbox"/> Does Not Meet
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# Road Inventory and Evaluation Form B

## CLASS 4 ROADS

1 road segment = 100 meters = 328 feet  
 Both sides of road = 200 meters = 656 feet  
 Sheet Flow <1" erosion depth  
 Rill 1"-11" erosion depth  
 Gully 12"+ erosion depth

Name:

Date:

ROAD SEGMENT NAME, Town Highway Number & Segment ID number:	SLOPE:

Linear feet (L)	Width (W)	Depth (D)	Total Cubic Yards (LWD/27)	Location of erosion within road cross section	Notes and likely cause of erosion
				Travel lane	
				Embankment/shoulder	
				Drainage ditch	
				Ditch outlet/conveyance zone/turnout	
				Drainage culvert or water bar (presence/absence or size/quantity)	
				Drainage culvert outlet	
				Drainage culvert headwall	
				Stream and road conflict	
				Other area:	

Total Segment Score	<input type="checkbox"/> Any Gully Erosion = Does Not Meet	<input type="checkbox"/> No Gully Erosion = Fully Meets
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